



SPECIFICATION FOR RoHS 6 COMPLIANT HCMOS SMT OSCILLATOR MtronPTI P/N: M2002T021

Electrical Specifications:

| Parameter | Symbol | Min. | Typ. | Max. | Units | Conditions |
|-------------------------|--------------------------------|-------------------------------|-----------|---------------------|--------|---|
| Frequency of Operation | F _O | | 10.240000 | | MHz | |
| Frequency Stability | ΔF/F | -50 | | +50 | ppm | Inclusive of initial tolerance at +25°C, deviation over temperature, shock, vibration, voltage & load variations and 1 year aging |
| Operating Temperature | T _A | 0 | | +70 | °C | |
| Storage Temperature | T _S | -55 | | +125 | °C | |
| Operating Voltage | V _{DD} | 3.0 | 3.3 | 3.6 | V | |
| Operating Current | I _{DD} | | | 6 | mA | |
| Output Type | | HCMOS Compatible | | | | |
| Output Load | | 30 | | | pF | |
| Symmetry (duty cycle) | T _{DC} | 45 | | 55 | % | @ 50% of V _{DD} |
| Logic "1" Level | V _{OH} | V _{DD} - 0.5 | | | V | HCMOS load |
| Logic "0" Level | V _{OL} | | | 0.4 | V | HCMOS load |
| Rise/Fall Time | T _R /T _F | | | 4.5 | nS | From 10% to 90% V _{DD} |
| Phase Jitter | Φ _J | | | 5.0 | pS RMS | Integrated 12kHz to 20MHz |
| Tri-state Enable Logic | | 80% V _{DD} or N/C | | | V | Pad 1. Clock Signal Output |
| Tri-state Disable Logic | | | | 20% V _{DD} | V | Pad 1. Output to high-Z |

Environmental Conditions:

| | |
|----------------------------|---|
| Mechanical Shock | Per JESD22-B-104-A 1500g Peak 0.5 msec duration 5 pulses in 6 directions |
| Vibration | Per JESD22-B-103-A 20g Peak (20-2000 Hz) in X, Y and Z directions |
| Thermal Cycle | Per MIL-STD-883, Method 1010, B (-55°C to 125°C, 15 min. dwell, 10 cycles) |
| Hermeticity | Per MIL-STD-202, Method 112 (1 x 10 ⁻⁸ atm cc/s of Helium) |
| ESD-Human Body Model | 2000 volts; Per JESD22A-114-A |
| ESD-Machine Model | 200 volts; Per JESD22A-115-A |
| Solderability | Per EIAJ-STD-002 |
| Max. Soldering Conditions | See solder profile, Figure 1 |
| Package Type | 5.0 x 7.0 x 1.7 mm, 4-pad Ceramic Leadless Chip Carrier (M2 type) |
| Termination (Pad) Material | 10 to 15 μm of tungsten (W), 1.29 to 8.89 μm of nickel (Ni), 0.3 to 1.0 μm of gold (Au) |
| Moisture Sensitivity Level | 1 |

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Mechanical, Marking and Layout Information:

| Pad | Function |
|-----|------------------|
| 1 | Tristate |
| 2 | Ground |
| 3 | Output |
| 4 | +V _{DD} |

| Part Marking | |
|--------------|------------|
| Line 1 | M2002T021 |
| Line 2 | 10M2400 |
| Line 3 | M yy ww vv |

| Legend | |
|--------|--------------|
| yy | Year |
| ww | Work week |
| vv | Factory code |

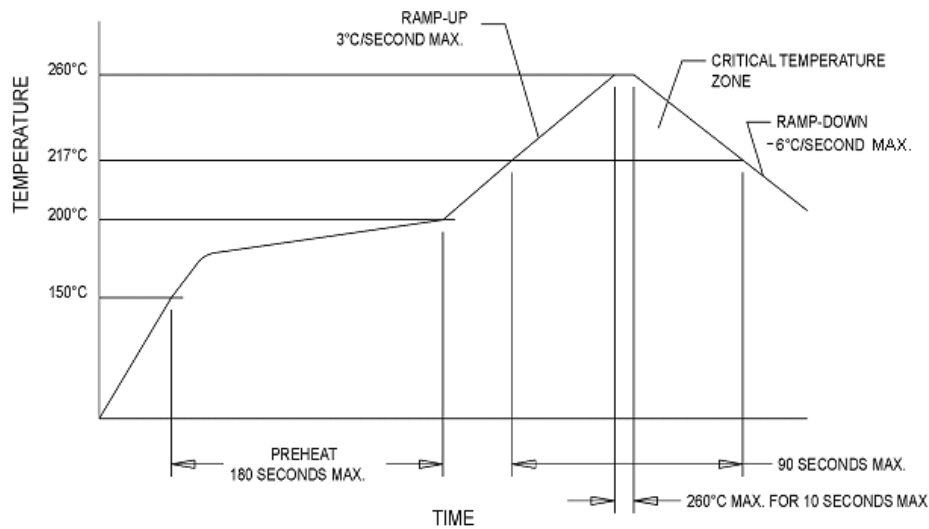
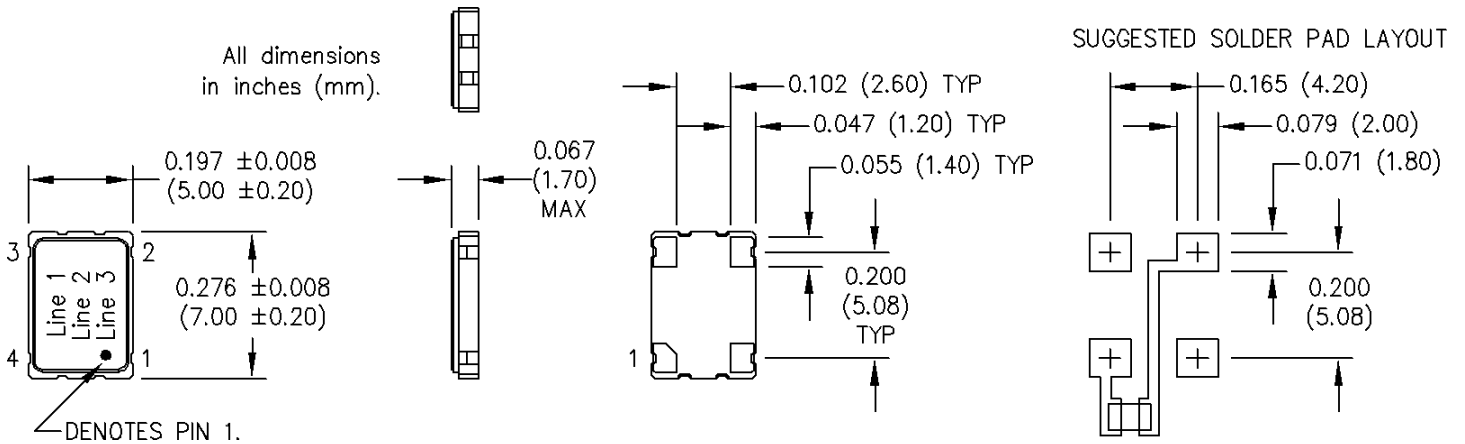


Figure 1

Datasheet Revision Table:

| Date | Rev. | Author | Details of Revision |
|----------|------|--------|---------------------|
| 11/17/10 | 0 | DDM | Original release. |